

VI.—*A Note on the Breeding Birds of Crete.*

By Col. R. MEINERTZHAGEN, D.S.O., M.B.O.U., F.Z.S.

I ARRIVED in Crete on the 4th of June, 1920, and left the island in early July, having had my visit cut short for official reasons. H. L. Powell accompanied me as taxidermist.

Landing at Candia I collected for three days in the neighbourhood and then went direct to Mount Ida, the central hill-mass of Crete. Here I remained for about a fortnight. No collecting was done outside the Candia district.

The area comprising this district falls easily into three areas :—

- (a) Below 2500 feet. Human habitations and cultivation, mostly olives, vines, orchards, and corn.
- (b) Between 3000 and 4500 feet. Ilex forest on mountain slopes.
- (c) Above 4500 feet. The bare wind-swept hills of Ida and Nidha with the remarkable Nidha Plain. The summit of Ida is 8200 feet elevation, and snow was still lying about in drifts of many acres in extent above 6500 feet.

Travelling in Crete in summer is easy. The weather is perfect and one can sleep anywhere, though the nights on Ida were bitterly cold. I always bedded down in some garden, having taken no tent with me. On Mount Ida one has difficulty in avoiding an incessant wind, as shelter is rare, but we usually managed to get in a hollow. Staple foods can be obtained everywhere and good water abounds. Mule transport is the rule, a beast carrying about 400–450 pounds the whole day without fatigue. There is but one great drawback—expense. A naturalist, living simply, without tent or luxury, must be prepared to spend £100 per month, excluding his ticket to the island. Mules cannot be hired for less than £1 a day each. A guide-interpreter costs from £12 to £15 per month. My expenses were particularly heavy, as I was compelled to retain in my service the numerous policemen and consular messengers who were searching for me for three weeks.

The Cretans are charming and very helpful, more especially the shepherds of Mount Ida, whose evil reputation I emphatically deny. They are robbers by nature and are a law unto themselves, but if one appreciates that spirit of freedom and contempt for the soft civilization of plenty, they rank as nature's foremost gentlemen. The chieftain of Ida, one George Nikolokakis, though doubtless a thorn in the side of the Cretan police and the officials, was kindness itself to me, and I look back to his rough kind face and his imperious manners, with a desire to accept his kind invitation to stop with him for a complete summer.

Though I speak not a word of modern Greek, my derelict knowledge of ancient Greek was most useful. It was pleasant to hear the Chukar called "Caccaba," the Vultures "Gyps," the Ravens "Mavro Corax," the Larks "Corydallos," the Nightingale "Ædon," the Swallow "Chelidon," and the Eagle "Ætos."

Finally, I must again thank Dr. Hartert for the ungrudging help he always gives me at Tring, and Lord Rothschild for allowing me to make every use of his collection.

Specimens were obtained of every species mentioned, unless it is stated to the contrary. Wing-measurements taken flat, culmen-measurements from the junction of upper mandible and skull.

Corvus corax corax (L.).

Two young males obtained, both moulting into adult plumage. They belong to the typical race, there being no trace of the oily blue on the wing-coverts or brown on the upper parts as in *C. c. laurencei*.

It seems doubtful whether the Ravens of eastern Greece are *C. c. laurencei*, as stated by Reiser (Orn. Balcan. iii). Gengler (J. f. O. April 1919) thinks they are some undescribed race, but the few I have seen myself in Greece are the typical race as in Crete (*cf.* also Stresemann, Avif. Macedon. p. 1).

The Raven is to be seen at all elevations in Crete, breeding in the hills apparently in March.

Corvus cornix minos Meinertz.

Corvus c. minos Meinertzhagen, Bull. B. O. C. xli. 1920, p. 19 : Candia.

This new race is pale and very similar to *C. c. pallescens* from Cyprus, but has a longer wing and a deeper and longer culmen.

It is a common bird, ascending to the Nidha Plain at 5000 feet. It breeds in olive and oak trees, the young being well on the wing by the end of June.

Garrulus glandarius cretorum Meinertz.

Garrulus g. cretorum Meinertzhagen, Bull. B. O. C. xli. 1920, p. 19 : Mount Ida.

Very near *G. g. ichnuse* from Sardinia, but with a slightly redder neck and greyer back. Similar in size.

Not seen below 4000 feet, and apparently confined to the Ilex forest. Both full-grown and half-grown young seen in the middle of June.

Pyrhocorax pyrrhocorax (L.).

The Chough was abundant on Mount Ida between 5000 and 7000 feet. About 100 pair were nesting in the Kamares Cave in June, the young being well on the wing and a few still in the nest in mid-June.

The young have a peculiar call, not unlike that of *Merops apiaster*. Several smaller colonies were found in other smaller caves.

Doubtless the "Yellow-billed Choughs" reported by Miss Bate (Trevor-Battye : 'Camping in Crete') were the young of this species.

Chloris chloris subsp. ?

A single adult male obtained in worn plumage. In size it is nearest to *C. c. chlorotica*, but in general coloration is nearest *C. c. maderaszi* from Cyprus. It is certainly not *C. c. mühleii*, which is a darker and larger bird than my Cretan specimen.

Common from sea-level to 4500 feet, both in cultivation and in the Ilex forest. Full-grown young seen on 7 June.

Carduelis carduelis härmsi Reichw.

Four adults in worn breeding plumage agree well with birds in similar plumage from Palestine. After a further examination of birds from the Caucasus, Asia Minor, Palestine, and Cyprus, I am confident that only one race of the Goldfinch occurs as a breeding species in these localities. The difference in the intensity of the colour on the back among freshly-moulted birds and worn birds is very remarkable, and accounts for the many races which have been described from the range of *C. c. härmsi*.

Acanthis cannabina mediterranea Tschusi.

I cannot agree with Stresemann (Avif. Macedon.) that *A. c. mediterranea* becomes a synonym of *A. c. bella*. The latter race was described from Syria, and all Syrian birds which I have examined are most certainly *A. c. fringillirostris*. Stresemann appears only to have examined birds from Asia Minor, and these are quite likely *A. c. mediterranea*. It does not follow that Syrian and Asia Minor birds are similar. *A. c. bella* must therefore remain a synonym of *A. c. fringillirostris*.

A common breeding bird, but not seen below 2000 feet. Full-grown young were seen in early June. When I first saw these birds on Mount Ida, far away from bushes and among rocks and dwarf alpine plants, I thought they were Twites, more especially as I believe Drummond reported Twites from the island. I shot several of these Mount Ida Linnets, and I do not think the Twite exists in Crete.

Fringilla cœlebs subsp.?

Four males in worn breeding plumage appear to be less brown on the upper back than birds from the continent, and they are on the small side, the wings varying from 84 to 88 mm.

The Chaffinch is a common breeding bird from sea-level to the top of the Ilex forest at 5000 feet. Young were just out of the nest by the middle of June.

Cretan name "spinos."

Passer italiae (Vieill.).

Cretan specimens are indistinguishable from birds from Italy. Common about all human habitations up to 2000 feet, and always nesting in buildings. Young were not out of the nest by the middle of June, when all hen birds were still being fed by the cocks.

Emberiza calandra calandra L.

Two birds obtained do not differ from typical examples.

Not uncommon in suitable country from sea-level to 2000 feet. A nest with four incubated eggs was found on 13 June.

Emberiza hortulana L.

Quite common and breeding between 2000 and 4000 feet, and a few at sea-level near Candia. Adults were feeding young in the nest in early June.

Calandrella brachydactyla brachydactyla (Leisler).

Five adults are typical, wings varying from 88 to 98 mm. Found breeding commonly at two places, on the Nidha Plain at 5000 feet and near Varavara on the southern slopes of Mount Ida at 2000 feet.

Galerida cristata meridionalis Brehm.

Six birds were obtained in very worn plumage, but I have been fortunate in being able to compare a winter bird in the Tring Collection with specimens from Greece and Albania.

A common breeding bird up to 2500 feet. First young seen out of the nest on 29 June.

Lullula arborea subsp.?

Five birds in worn breeding plumage seem nearest to *L. a. flavescens* from the Balkans, but until autumn or winter birds are obtained I refrain from defining their race.

Fairly common above 1500 feet and reaching up to 6000 feet. Five incubated eggs were found on 18 June, and several broods seen on the wing at the end of the same month.

Anthus campestris campestris (L.).

Four obtained are identical with others from southern Europe.

Common in suitable country between 2000 and 4000 feet, and a few were breeding at 6000 feet on Mount Ida.

Certhia brachydactyla subsp. ?

Tree-Creepers were found at 4500 feet at the top of the Ilex forest on the southern slopes of Mount Ida, and three adults and three young were obtained. The former are in such worn plumage that it is impossible to say to which race they belong.

Parus major peloponnesus Parrot.

Five adults in worn plumage appear to agree with birds from Greece.

Common from sea-level to the limit of the Ilex forest, say 4500 feet. Full-grown young were seen about by early June.

Parus cæruleus ogliastræ Hartert.

An adult female and a young bird obtained. But I have examined Witherby's adult male collected by Lynes at Suda Bay, and I agree with Witherby (Ibis, 1912, p. 145) that the Cretan form belongs to this race. They are certainly not the typical race as stated by Jourdain ('Eggs of European Birds'). The wing of my female measures 61 mm.

Not uncommon in wooded country from sea-level to 5000 feet. Young were well on the wing by early June.

Parus sp. ?

On two occasions on Mount Ida at 5000 feet in Ilex forest I heard and saw a brown Tit which I failed to secure. It was not the Marsh or Coal Tit.

Lanius senator niloticus (Bp.).

Two breeding males have less white at the base of the central tail-feathers than Palestine breeding birds, and in this respect approach the typical race. Perhaps the formula *Lanius s. niloticus* > *senator* would be a convenient way of expressing this, as is done by Stresemann (Avif. Macedon.).

Birds from Crete certainly do not belong to the typical form as stated by Jourdain ('Eggs of European Birds').

A scarce breeding bird, occurring from sea-level to 4000 feet. A nest with five incubated eggs was found at Gnossos on 13 June.

Muscicapa striata striata (Pall.).

Two males obtained are identical with birds from Continental Europe.

The Spotted Flycatcher is a common breeding bird from sea-level to 4500 feet. A nest with five incubated eggs was found at 2000 feet on 11 June.

Locustella luscinioides luscinioides (Savi).

A male and fully-fledged young bird were obtained near Candia in early June. They agree with birds from southern Europe, but the male is small, having a wing of barely 60 mm., and a culmen of only 15 mm.

Not otherwise seen.

Hippolais sp.?

Probably *H. pallida*. Seen and heard on several occasions below 2000 feet. Not obtained.

Sylvia communis communis Lath.

Two males in worn breeding plumage were obtained. They approach nearest to the western race, though they are rather grey on the upper parts.

A fairly common breeding bird up to 2000 feet.

Sylvia melanocephala melanocephala (Gm.).

The breeding Cretan bird undoubtedly belongs to the typical race, though they are on the small side, wings of males varying from 57 to 59 mm., but the coloration is that of the typical race. Birds from the hills appear darker below than those from the plains.

The Sardinian Warbler is a scarce breeding species below 2000 feet. On Nidhia Plain they were especially common at 5000 feet, where young were on the wing by the third week in June.

Turdus merula subsp.?

Only one bird, an adult male, obtained. Wing 113 and culmen 25 mm. This is smaller than any other adult male I have examined from Europe, and from what I saw of the Blackbird in Crete, they all seemed uncommonly small. It seems likely that this is a new insular race, but a larger series are necessary before it can be named. A pair of live birds were brought to Egypt, where they are doing well in the Giza Zoological Gardens.

The Blackbird occurs throughout the country, but is very shy and difficult to obtain. Trevor-Battye ('Camping in Crete') thought the hill bird smaller than the plain bird, but I did not notice this difference.

Cretan name "kotsifos."

Monticola solitarius solitarius (L.).

A female obtained belongs to the western race.

Occurs as a breeding species in all suitable country from sea-level up to 6000 feet.

Cretan name "petro kotsifos."

Ænanthe œnanthe virago Meinertz.

Ænanthe œ. virago Meinertzhagen, Bull. B. O. C. xli. 1920, p. 20: Mount Ida.

Adult male with a more silvery mantle and larger culmen than in the typical race. Adult female closely resembling the male and not brown. Juvenile plumage tinged with grey, whereas there is no grey in the young of the other races.

A common breeding bird on Mount Ida above about 4000 feet and ascending to the summit of Ida at 8200 feet.

Fully-fledged young are about by the end of June.

These birds appeared to be equally at home in the *Ilex* forest, on the wind-swept slopes of Ida or among the snow drifts, perching with equal ease on tree or rock.

Mr. Witherby kindly lent me five birds from Suda Bay obtained by Capt. Lynes in March and early April. The four males have wings varying from 93 to 98 and culmens from 17.5 to 19 mm. One has a broad white forehead, two have

moderate white foreheads, and the fourth has a narrow white forehead. The female is typical of *Enanthe* *α. enanthe*, and has a wing of 90 and culmen of 17 mm. These birds, undoubtedly on spring passage, all belong to the typical race.

***Enanthe hispanica melanoleuca* (Güld.).**

Saxicola h. xanthomelana (H. & E.); Hartert, Vög. pal. Fauna, p. 687.

Two breeding males obtained belong to this eastern race. Black-throated and white-throated birds appear to be in equal numbers.

Fairly common below 3000 feet. Not seen above that altitude, though Trevor-Battye states they occur up to 6000 feet in the White Mountains in western Crete.

***Saxicola torquata rubicola* (L.).**

Two males and a female do not vary from typical specimens except that their culmens are on the large side, measuring 14 and 15 mm. The back of the two males is of a particularly intense black, but this also occurs among others from southern Europe.

The Stonechat occurred as a breeding bird at all elevations, being commoner at higher elevations than in the plains.

***Luscinia megarhynchos megarhynchos* Brehm.**

The western race of the Nightingale breeds in Crete up to 2000 feet wherever suitable conditions prevail. They were beginning to go off song about the third week in June. Two adults were obtained.

***Troglodytes troglodytes* subsp. ?**

Four adults and two young birds obtained. The culmen is large, varying from 13.5 to 15 mm. In typical *Troglodytes t. troglodytes* the culmen does not exceed 13.75 mm. The culmen is nearer that of *T. t. cypriotes* or *kabylorum*. The plumage of the adults is so worn that I have been unable to say definitely whether they are a new form or not. They appear to be greyer and more streaked on the back than other closely-allied forms, but this might be due to abrasion and bleaching.

The Wren was common on Mount Ida at over 4500 feet. Full-grown young with their parents were about in parties by the middle of June.

***Accentor collaris subalpinus* (Brehm).**

A single bird shot is referable to this Balkan race. I only saw them at Nidha Cave at 5500 feet. Trevor Battye ('Camping in Crete') found them common on Mount Ida at 7500 feet in June.

Stresemann (Avif. Macedon.) unites this race with the typical form. In this I cannot agree; my bird resembles others in the Tring Museum from the Balkans, and accords well with Hartert's description (Vög. pal. Fauna, p. 763).

***Hirundo rustica rustica* (L.).**

A single breeding male obtained on 8 June. The specimen is white below, slightly tinged and blotched with chestnut. If the race *H. r. boissonneanti* Temm. is recognised it may belong to it, but I have not had any Balkan specimen with which to compare my examples.

The Swallow is a plentiful breeding bird wherever there are human habitations. Three nests found at Gnossos on 8 June had fresh eggs, hard-set eggs, and half-fledged young.

***Riparia rupestris* (Scop.).**

Common at all elevations where caves or rough craggy country occurs.

***Apus apus apus* (L.).**

Three breeding birds obtained agree with others from western Europe, and are not *A. a. marwitzi* or *A. a. pekinensis*.

Swifts were breeding abundantly at Candia and on all the small coastal islands off Candia. A few were seen in company with *Apus melba* on the summit of Mount Ida on 23 June, but I doubt whether they were up there for any other purpose but food.

***Apus melba melba* (L.).**

A common breeding species in the hills and on Dia Island off Candia. Three obtained are typical.

Caprimulgus europæus meridionalis Hartert.

A male obtained at 2000 feet on 13 June was the only one seen. Trevor-Battye ('Camping in Crete') saw them frequently in summer.

Cretan name "arno vysastra," a literal translation of Goat-sucker.

Otus scops powelli Meinertz.

Otus scops powelli Meinertzhagen, Bull. B. O. C. xli. 1920, p. 21 : Candia District.

This new race, intermediate between the typical form and *O. s. cyprius*, was common from coast-level to 2000 feet, and a few were heard in the Ilex forest at 4000 feet. Two clutches of eggs were taken from holes in buildings on 13 and 15 June, the former consisting of four incubated eggs, and the latter of two fresh and one incubated egg.

Birds were frequently heard calling by daylight, and it was not difficult at dusk to call them to quite close quarters.

Falco peregrinus subsp.?

A small Peregrine was twice seen in the hills, but none were obtained.

Falco tinnunculus tinnunculus L.

I obtained two breeding males, with wings measuring 223 and 245 mm. respectively. One of these birds is much redder below than most European birds, whilst the other is normal. I have recently examined a series of 157 Kestrels, and I find that in the southern part of their breeding range birds tend to become more red below than those breeding in central and northern Europe and Asia, though, of course, such red birds occur frequently in both the British Islands and throughout Europe. I am going fully into this question at a near date, but all that concerns us for the moment is that the Cretan breeding bird can only be referred to the typical form.

Kestrels were seen everywhere in small numbers. Two nests, both with half-grown young, were found in buildings. In both cases the cock bird was feeding the chicks, visiting

the nest only about three times a day. I never saw the hen bird at the nest in either case.

Falco eleonoræ Gené.

One obtained. There are large colonies of these Falcons on Dia and Paximadi Islands north of Candia, and I sincerely trust no ravening oologist will abuse this information. Occasional birds were also seen in olive gardens near the coast, and flying high over Crete at dusk.

Aquila chrysaetos, a *Buteo*, *Gyps fulvus*, and *Gypaëtos barbatus* were frequently seen but not obtained. *Ardea cinerea* was often seen on the coast near Candia, and had apparently bred on a small island, where an empty nest and full-grown young were seen.

Botaurus stellaris was twice seen near Candia in June, and may have been breeding.

Phalarocorax carbo breeds in colonies on the small rocky islands near Candia, where many empty nests were found in late June, and about 30 young seen.

Adults and full-grown young of *Anas platyrhynchos* were seen on the Halmyros stream near Candia on 2 July.

No examples of the above species were obtained.

Columba livia palæstinæ Zedl.

The Cretan Rock-Pigeon is referable to this race, being much paler than *Columba l. livia* on the upper parts and slightly smaller. Two birds obtained have white lower backs, and compare well with a large series from Palestine, Syria, and, curiously enough, Sollum in western Egypt. It would therefore appear that *C. l. palæstinæ* occurs not only in Palestine, Sinai, and Arabia, but in the eastern Mediterranean, with the exception of the Egyptian Delta, where the smaller *C. l. schimperi* occurs.

The wings of my two Cretan birds measure 216 and 220 mm., both males.

Rock-Pigeons were breeding commonly on all the islands near Candia, on the coast, and in the hill caves of Mount Ida. Let he who fancies himself at shooting try his hand

at a Rock-Pigeon coming out of Kamares Cave; if he recovers one bird for every three cartridges he will do well.

Most of the young birds were on the wing by the middle of June.

***Columba palunbus palunbus* L.**

A pair of breeding birds obtained agree in colour with continental birds, but are small, the wing of a male measuring 246 mm., and that of a female 236 mm.

Wood-Pigeons were common in the Ilex forest between 3000 and 4500 feet, coming down to 3000 feet to feed. No young were seen on the wing by the middle of June.

***Alectoris græca cypriotes* Hartert.**

Three males and two females were obtained, all adult birds. Wing of males 155, 160, and 163, and of the females 148 and 151 mm. Cyprus birds vary from 162 to 169 in males, and from 153 to 157 in females, so the Cyprus birds are somewhat larger. Such a slight difference in a large bird cannot count for much, and as they agree absolutely in colour with breeding birds from Cyprus, I unite them with the Cyprus race.

The Chukar is thinly distributed below 3000 feet, above which they are abundant. Young birds from newly-hatched young to birds slightly larger than quail were seen in the last week in June.

***Coturnix coturnix* (L.).**

A pair were flushed out of some vines at 2000 feet on 30 June. None were obtained.

***Fulica atra atra* L.**

A single adult male was obtained at Halmyros, near Candia, on 2 July. The bird had not bred during the year. All its pinions were in very short quill.

***Burhinus œdicnemus saharæ* (Reichw.).**

Only one was seen—a male, shot near Candia on 9 June. Wing 239 mm. Its pale sandy colour agrees absolutely with birds in similar plumage from the Sahara and Palestine.

Tringa ochropus L.

A flock of five birds were seen on 2 July near Candia, out of which a pair were shot. They were in complete breeding plumage, were very fat, and showed no signs of having bred.

Larus argentatus cachinnans was common off the coast near Candia, and had bred in a large colony on Paximadi Island; a young bird was found in the nest, but all the rest were on the wing.

Puffinus puffinus yelkouan and *Procellaria pelagica* were common at sea off eastern Crete throughout June, but I could not locate any breeding quarters.

VII.—*On the Economic Status of the Kingfisher*, *Alcedo ispida* Linn. By WALTER E. COLLINGE, D.Sc., F.L.S., M.B.O.U.

(Text-figure 2.)

I. *Introduction.*

THE brilliant external colouring of the Kingfisher (*Alcedo ispida* Linn.) makes it one of the most beautiful birds we have in this country, in consequence of which Yarrell (10) states, it is "so much sought after by the idle and thoughtless that its numbers, probably never very great in any part of the country, have of late years very sensibly decreased . . . but the most constant persecution the species undergoes arises rather from the delight . . . so many people take in possessing its stuffed skin; . . . and to this end more Kingfishers are probably shot or netted for English bird-stuffers than any other species." Although this statement was made nearly fifty years ago, it is equally true to-day. So recently as 1891 Mr. A. H. Cocks (2) reported that a local bird-stuffer had nearly a hundred Kingfishers sent to him to set up that year.

Further, as a frequenter of streams, brooks, and rivers, this bird has generally been regarded as injurious to fish-culture, and consequently has been ruthlessly shot.